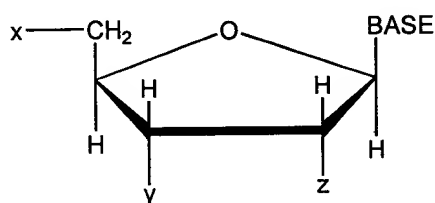




M7 480. (Amended) The oligo- or polydeoxyribonucleotide of claim 478, wherein the sugar moiety of said terminal nucleotide has [hydrogen] oxygen atoms at each of the 2' and 3' positions thereof.

482. (Amended) An oligo- or polydeoxyribonucleotide which is complementary to a nucleic acid of interest or a portion thereof, said oligo- or polydeoxyribonucleotide comprising at least one modified nucleotide having the structural formula:



wherein BASE is a moiety selected from the group consisting of a pyrimidine, a purine and a deazapurine, or analog thereof, and wherein BASE is attached to the 1' position of the pentose ring from the N1 position when BASE is a pyrimidine or from the N9 position when BASE is a purine or a deazapurine;

wherein x is selected from the group consisting of H—, HO—, a mono-phosphate, a di-phosphate and a tri-phosphate;

M8 wherein y is selected from the group consisting of H—, HO—, a mono-phosphate, a di-phosphate and a tri-phosphate;

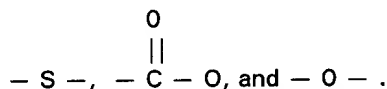
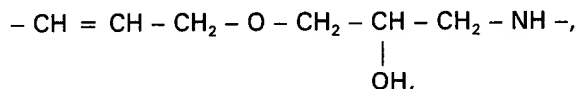
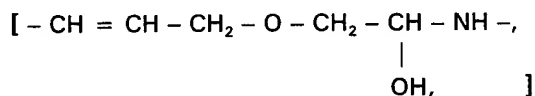
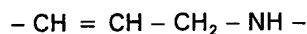
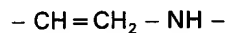
wherein z is selected from the group consisting of H—, HO—, a mono-phosphate, a di-phosphate and a tri-phosphate; and

wherein Sig is covalently attached [to x, y or z] directly or through a chemical linkage to at least one phosphate selected from the group consisting of x, y, z, and a combination thereof, said Sig [being a moiety capable of non-radioactive detection] comprising a non-radioactive label moiety which can be directly or indirectly detected when so attached to [x, y or z] said phosphate or when said modified nucleotide is incorporated into said oligo- or polydeoxynucleotide or when said oligo- or polydeoxynucleotide is hybridized to said complementary nucleic acid of interest or a portion thereof.

Claim 483, line 2, after "oligo or" and before "self-signaling" change  
"polynucleotide" to -- polydeoxyribonucleotide -- .

487. (Amended) The oligo- or polydeoxyribonucleotide of claim 482, wherein said chemical linkage comprises a member selected from the group consisting of an olefinic bond at the [alpha-position] α-position relative to the point of attachment to the nucleotide, a -CH<sub>2</sub>NH- moiety, or both.

489. (Amended) The oligo- or polydeoxyribonucleotide of claim 482, wherein said chemical linkage comprises or includes an olefinic bond at the [delta-position] α-position relative to x, y or z, or any of the moieties:

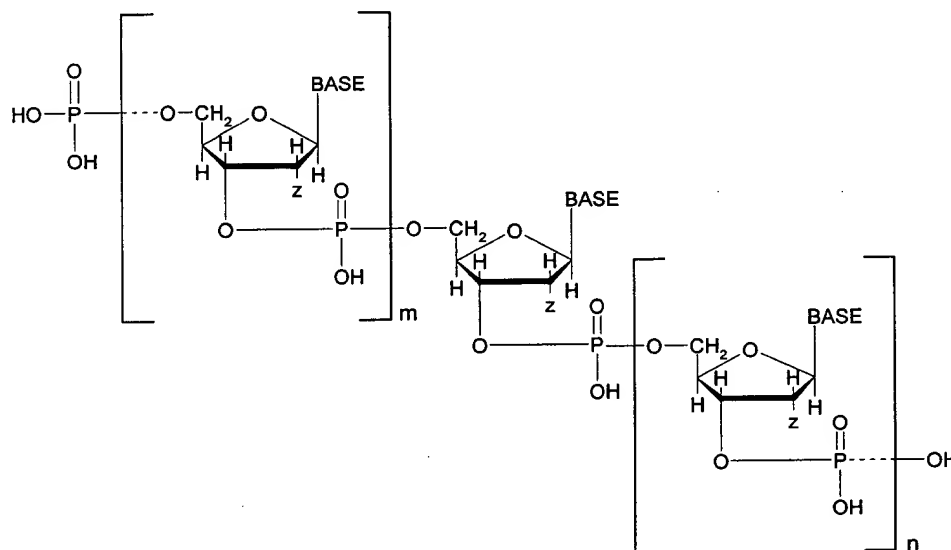


494. (Amended) The oligo- or polydeoxyribonucleotide of claim 482, wherein Sig is selected from the group consisting of a ligand and a specific ligand binding protein [complexed with a binding protein therefor, and said binding protein is conjugated to ferritin].

504. (Amended) The composition of claim 502, wherein said polypeptide is selected from the group consisting of avidin, streptavidin and [anti-Sig] anti-hapten immunoglobulin.

508. (Twice Amended) The oligo- or polydeoxyribonucleotide of claim 506, wherein both y and z of said terminal nucleotide comprise [a hydrogen] an oxygen atom at each of the 3' and 2' positions thereof, respectively.

510. (Amended) The oligo- or polydexoyribonucleotide of claim 482, having the structural formula:



wherein  $m$  and  $n$  represent integers from 0 up to about 100,000, and wherein said Sig moiety is attached to at least one of the phosphate moieties in said structural formula.

M<sub>14</sub>

511. (Amended) An oligo- or [polyribonucleotide] polynucleotide which is complementary to a nucleic acid of interest or a portion thereof, said oligo- or polynucleotide comprising at least one [ribonucleotide] modified nucleotide having the formula

Sig - PM - SM - BASE

wherein PM is a phosphate moiety, SM is a sugar moiety and BASE is a moiety selected from the group consisting of a pyrimidine, a purine and a deazapurine, or analog thereof, said PM being attached to SM [at a position of SM selected from the 2', 3' and 5' positions, or combinations thereof], said BASE being attached to SM, and Sig being covalently attached to PM directly or via a chemical linkage, said Sig [being a moiety capable of non-radioactive detection] comprising a non-radioactive label moiety which can be directly or indirectly detected when attached to PM or when said modified nucleotide is incorporated into said oligo- or [polyribonucleotide] polynucleotide, or when said oligo- or polynucleotide is hybridized to said complementary nucleic acid of interest or a portion thereof, provided that when said oligo- or polynucleotide is an oligoribonucleotide or a polyribonucleotide, and when Sig is attached through a chemical linkage to a terminal PM at the 3' position of a terminal ribonucleotide, said chemical linkage is not [a cleaved 3' terminal ribonucleotide] obtained through a 2',3' vicinal oxidation of a 3' terminal ribonucleotide previously attached to said [oligo- or polyribonucleotide] oligoribonucleotide or polyribonucleotide.

512. (Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 511, wherein said Sig is or renders the nucleotide or the oligo- or polynucleotide self-signaling or self-indicating or self-detecting.

Claim 513, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 514, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 515, line 1, change "polyribonucleotide" to -- polynucleotide -- .

516. (Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 511, wherein said chemical linkage comprises a member selected from the group consisting of an olefinic bond at the [alpha-position] α-position relative to the point of attachment to the nucleotide, a -CH<sub>2</sub>NH- moiety, or both.

Dean L. Engelhardt et al.

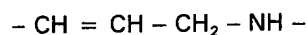
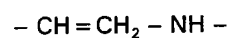
Serial No.: 08/479,997

Filed: June 7, 1995

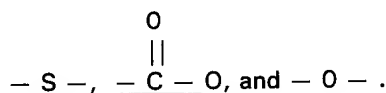
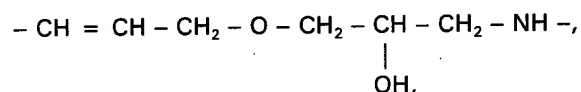
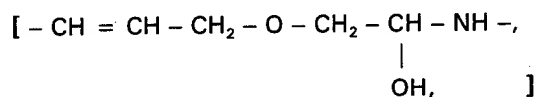
Page 8 [Amendment Under 37 C.F.R. §1.116 to the July 18, 2000  
Office Action - January 18, 2001]

Claim 517, line 1, change "polyribonucleotide" to -- polynucleotide -- .

518. The oligo- or [polyribonucleotide] polynucleotide of claim 511, wherein said chemical linkage comprises or includes an olefinic bond at the [delta-position] α-position relative to the point of attachment to the nucleotide, or any of the moieties:



M16



Claim 519, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 520, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 521, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 522, line 1, change "polyribonucleotide" to -- polynucleotide -- .

M17

523. (Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 511, wherein Sig is selected from the group consisting of a ligand and a specific ligand binding protein [complexed with a binding protein therefor, and said binding protein is conjugated to ferritin].

Claim 524, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 525, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 526, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 527, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 528, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 529, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 530, lines 1 and 2, change "polyribonucleotide" to -- polynucleotide -- .

Claim 531, line 1, change "polyribonucleotide" to -- polynucleotide -- .

M18  
533. (Amended) The composition of claim 531, wherein said polypeptide is selected from the group consisting of avidin, streptavidin and [anti-Sig] anti-hapten immunoglobulin.

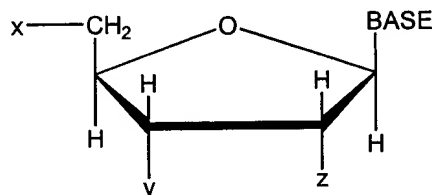
535. (Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 511, wherein said Sig moiety is attached to a terminal [ribonucleotide] nucleotide in said oligo- or [polyribonucleotide] polynucleotide.

M19  
536. (Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 535, wherein the sugar moiety of said terminal [ribonucleotide] nucleotide has a hydrogen atom at the 2' position thereof.

537. (Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 535, wherein the sugar moiety of said terminal nucleotide has [a hydrogen] an oxygen atom at each of the 2' and 3' positions thereof.

Claim 538, line 1, change "polyribonucleotide" to -- polynucleotide -- .

539. (Amended) An oligo- or [polyribonucleotide] polynucleotide which is complementary to a nucleic acid of interest or a portion thereof, said oligo- or polynucleotide comprising at least one modified nucleotide having the structural formula:



wherein BASE is a moiety selected from the group consisting of a pyrimidine, a purine and a deazapurine, or analog thereof, and wherein BASE is attached to the 1' position of the pentose ring from the N1 position when BASE is a pyrimidine or from the N9 position when BASE is a purine or a deazapurine;

wherein x is selected from the group consisting of H—, HO—, a mono-phosphate, a di-phosphate and a tri-phosphate;

wherein y is selected from the group consisting of H—, HO—, a mono-phosphate, a di-phosphate and a tri-phosphate;

wherein z is selected from the group consisting of H—, HO—, a mono-phosphate, a di-phosphate and a tri-phosphate; and

M20 wherein Sig is covalently attached [to x, y or z] directly or through a chemical linkage to at least one phosphate selected from the group consisting of x, y and z, and a combination thereof, said Sig [being a moiety capable of non-radioactive detection] comprising a non-radioactive label moiety which can be directly or indirectly detected when so attached to [x, y or z] said phosphate or when said modified nucleotide is incorporated into said oligo- or polynucleotide, or when said oligo- or polynucleotide is hybridized to said complementary nucleic acid of interest or a portion thereof, provided that when said oligo- or polynucleotide is an oligoribonucleotide or a polyribonucleotide and when Sig is attached through a chemical linkage to [y of] a terminal PM at the 3' position of a terminal ribonucleotide, said chemical linkage is not [a cleaved 3' terminal ribonucleotide] obtained through a 2',3' vicinal oxidation of a 3' terminal ribonucleotide previously attached to said [oligo- or polyribonucleotide] oligoribonucleotide or polyribonucleotide.



Claim 540, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 541, line 1, change "polyribonucleotide" to -- polynucleotide -- .

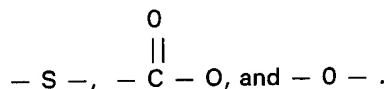
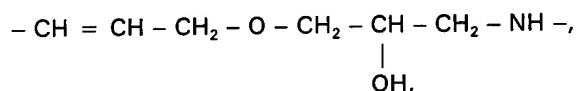
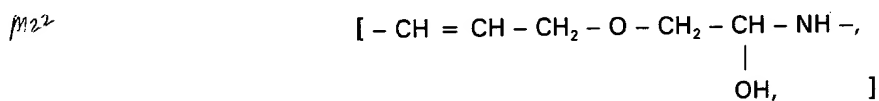
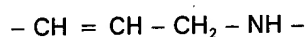
Claim 542, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 543, line 1, change "polyribonucleotide" to -- polynucleotide -- .

m21  
 544. (Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 539,  
 wherein said chemical linkage comprises a member selected from the group  
 consisting of an olefinic bond at the [alpha-position] α-position relative to the point  
 of attachment to the nucleotide, a -CH<sub>2</sub>NH- moiety, or both.

Claim 545, line 1, change "polyribonucleotide" to -- polynucleotide -- .

546. (Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 539,  
 wherein said chemical linkage comprises or includes an olefinic bond at the [delta-  
 position] α-position relative to x, y or z, or any of the moieties:



Claim 547, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 548, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 549, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 550, line 1, change "polyribonucleotide" to -- polynucleotide -- .

M23  
551. (Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 539, wherein Sig is selected from the group consisting of a ligand and a specific ligand binding protein [complexed with a binding protein therefor, and said binding protein is conjugated to ferritin].

Claim 552, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 553, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 554, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 555, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 556, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 557, line 1, change "polyribonucleotide" to -- polynucleotide -- .

Claim 558, lines 1 and 2, change "polyribonucleotide" to -- polynucleotide -- in both instances.

Claim 559, line 1, change "polyribonucleotide" to -- polynucleotide -- .

M24  
561. (Amended) The composition of claim 559, wherein said polypeptide is selected from the group consisting of avidin, streptavidin and [anti-Sig] anti-hapten immunoglobulin.

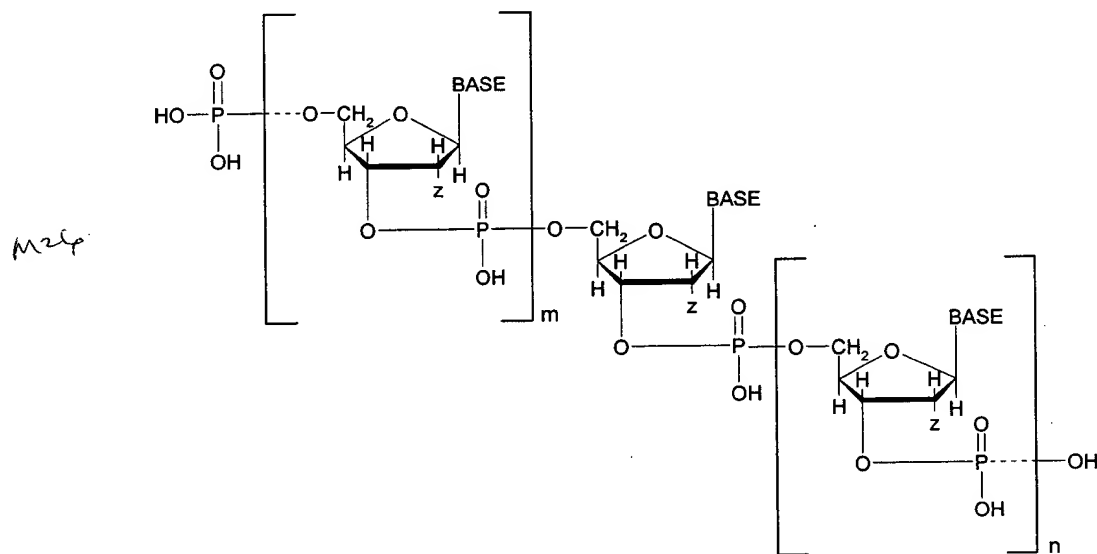
Claim 563, lines 1 and 2, change "polyribonucleotide" to -- polynucleotide -- , both instances.

Claim 564, line 1, change "polyribonucleotide" to -- polynucleotide -- .

M25  
565. (Twice Amended) The oligo- or [polyribonucleotide] polynucleotide of claim 563, wherein both y and z of said terminal nucleotide comprise [a hydrogen] an oxygen atom at each of the 3' and 2' positions thereof, respectively.

Claim 566, line 1, change "polyribonucleotide" to -- polynucleotide -- .

567. (Amended) The oligo- or [polydexoyribonucleotide] polynucleotide of claim 539, having the structural formula:



wherein m and n represent integers from 0 up to about 100,000, and wherein said Sig moiety is attached to at least one of the phosphate moieties in said structural formula.

Cancel claims 568-575.

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